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Kingdon, Geeta

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6 School-Sector Effects on Student Achievement in India

Geeta G. Kingdon

Analysis of education in India in general and of private and public schools in particular is hampered by the lack of available data. Despite recent improvements, there is a serious dearth of reliable educational data in India. First, the official data collection exercise on schools (both annually and in the periodic All India Education Survey) collects information only on the so-called “recognized” schools. Thus, large numbers of private schools are not included in the official data since they are “unrecognized” (Kingdon 1996a). Second, coverage of even the recognized schools is incomplete. For instance, coverage of various types of special schools is patchy across different states, such as central schools, army schools, education guarantee schools, schools registered with national examination boards, and so on (Mehta 2005). Third, enrollment figures in school-returns data are unreliable because failing publicly funded schools exaggerate their student numbers to justify their existence (Drèze and Kingdon 1998). Fourth, no national-, state-, or district-level data are collected on student learning achievement in primary and junior education in private and public schools; while exam boards do have achievement data for the *secondary* school level, these are not publicly available to researchers and, in any case, they are not linked to student, teacher, and school characteristics. The Annual Status of Education Report (Pratham 2007) collects national household data on over 300,000 primary-age children’s learning achievements but does not collect much information on home background or on schools and teachers.

Partly reflecting this lack of data, there is a paucity of good research on educational issues in India. Most of the existing research based on small surveys and using achievement production functions merely establishes correlations rather than causation between student achievement and particular school inputs. The inability to deal convincingly

with issues of the potential endogeneity of school inputs has been due to the ubiquitous problems of lack of credible instruments and lack of panel or experimental data, though some recent studies have used randomized experiments to study the impact of particular educational interventions (Banerjee et al. 2005; Duflo and Hanna 2005; Muralidharan and Sundararaman 2006; Pandey, Goyal, and Levine 2006) and others have used statistical techniques such as propensity-score matching methods (Jalan and Glinskaya 2002), instrumental variable methods (Kingdon and Teal 2007), pupil fixed-effects approaches (Kingdon 2006), and treatment effect models (Schmid 2006).

The first section of this chapter presents evidence on the relative sizes of private, aided, and government schooling sectors in India. The second section examines the relative effectiveness and per pupil costs of private and public schools in India and the final section discusses India's experience with public-private partnerships in education.

6.1 The Relative Sizes of the Private and Public Schooling Sectors

The very first fact about the private and public schools in India is that even their relative enrollment shares are not known with a degree of accuracy. This is mainly due to a failure to include all types of schools in official data collections but also partly due to exaggeration of enrollments in publicly funded schools in these data (Kingdon 1996a; Drèze and Kingdon 1998).

6.1.1 Typology of School Types in India

There are three main school types in India: government, aided, and private. Schools run by the central, state, or local governments are referred to as government schools. Schools run by private managements but funded largely by government grant-in-aid are known as private aided or just aided schools. They charge the same fee levels as government schools (which is now mandated to be nil) and pay the same salary rates to teachers as in government schools. From the early 1970s onward, their teachers have been paid directly from the state government treasury and are recruited by a government-appointed Education Service Commission rather than by the school. Thus, government and aided schools are now quite similar in their mode of operation. Schools run by private managements without state aid are known as "private unaided" schools. These run entirely on fee revenues and have virtu-

ally no government involvement in matters such as teacher recruitment. These are thus the genuinely private schools and we refer to these simply as “private” schools rather than using their full name “private unaided.”

Private schools in turn divide into two types: recognized schools and unrecognized schools. Government recognition is an official stamp of approval. To be eligible for government recognition, a private school is by law required to fulfill a number of conditions.¹ However, hardly any private schools that get recognition actually fulfill all the conditions. For instance, many recognized private schools in Uttar Pradesh run in rented buildings when having an owned building is a mandated condition of recognition (Kingdon 1994). Indeed, some of the conditions are or have over time become mutually inconsistent.² The main benefit of recognition used to be that with recognition a school became entitled to issue valid transfer certificates (TCs), which are a mandated requirement for admission into upper primary and secondary schools. However, the emergence of large numbers of unrecognized primary schools (as shown later) suggests this requirement is no longer strictly applied and that, *de facto*, recognized and unrecognized schools may not be too different in terms of their physical facilities and *modus operandi*.

6.1.2 Private Schooling Share According to Official and Household Data

Despite the data deficiencies listed above, it is clear that the fee-charging private schooling sector in India is much larger than thought in the past. Kingdon (1996a) challenged the prevailing notion in Indian writings, based on official published data, that the size of the private sector in primary education was “infinitesimally small” or “negligibly small.”

Table 6.1 shows the enrollment share of private schools in rural and urban India, according to both official school returns data in 1993 and 2002 and household survey data from 1993 and 2006. The bottom half of the table shows corresponding figures for Uttar Pradesh, a state with high levels of private school participation. The latest figures for the year 2005–06 from the District Information System for Education (DISE) are not shown because of its incomplete coverage.

Table 6.1 shows that according to official statistics, in 1993, only 2.8% of all rural primary school students in India were studying in private

Table 6.1
Enrollment Share of Private Schools, 1993–2006

Area	School level	Official published data 1993	Household survey data 1993	Official published data 2002	Household survey data 2006
<i>All India</i>					
Rural	Primary	2.8	10.1	5.8	19.5
	Junior/middle	6.5	7.9	11.1	20.4
	Secondary	6.8	10.1	14.3	22.8
Urban	Primary	25.7	26.2*	28.9	NA
	Junior/middle	18.8	15.4*	39.1	NA
	Secondary	11.5	11.2*	32.4	NA
<i>Uttar Pradesh</i>					
Rural	Primary	8.8	30.7	15.6	30.5
	Junior/middle	28.3	23.3	31.0	35.0
	Secondary	10.9	14.4	41.0	37.8
Urban	Primary	53.3	49.7*	64.1	NA
	Junior/middle	29.6	25.1*	48.2	NA
	Secondary	5.3	11.3*	29.7	NA

Source: 1993 official data computed from *Sixth All India Education Survey* (NCERT 1998). 2002 official data computed from *Seventh All India Education Survey*, available at <<http://gov.ua.nic.in/NScheduleData/main3.aspx>>. Rural household survey figures for 1993 are based on the author's calculations from 1993–94 NCAER survey. The urban household survey figures marked * are taken from 1995–96 *National Sample Survey* published in NSSO (1998, A69–82). Household survey figures for 2006 for rural India taken from ASER2006 (Pratham 2007).

Note: In official data I have taken grades 9–12 as secondary school, i.e., corresponding to students aged about 15–18 years old. ASER household survey collected data only on children up to age 16, so children aged 7–10, 11–14, and 15–16 are assumed to be in primary, middle, and secondary school respectively. In ASER, 18.6% of all children aged 7–10 were in private school and 4.6% were not in school, thus the private school share of total school enrollment is taken to be $(18.6/(100 - 4.6) * 100 = 19.5\%)$ and similar calculations were performed for middle and secondary school ages.

schools but that, according to household survey data for the same year, 10.1% of all rural Indian 6–10-year-old school attendees went to a private school, a figure more than three times as high as the official estimate.³ In rural Uttar Pradesh, official estimates for primary education put the 1993 enrollment share of private schools at 8.8% but according to the 1993–94 National Council of Applied Economic Research (NCAER) household survey, the actual share was 30.7%, again more than three times as high as the official estimate. By the time of the Public Report on Education (PROBE) survey in 1996, 36% of all primary-age students (6–11-year-olds) in rural Uttar Pradesh attended private

schools (PROBE Team 1999). Table 6.1 also shows that the enrollment share of private schools at the primary level rose from 2.8% in 1993 to 5.8% in 2002. If the extent of underestimation of private enrollment in 2002 is the same as in 1993, then the true private school share of total primary enrollments in rural India is three times as high as 5.8%, that is, about 17%. This is close to the only recent national estimate available: the ASER-2006 national sample survey of over 330,000 households across 15,800 villages finds that 19.5% of school-going rural 7–10-year-olds attended private schools in 2006.⁴ Table 6.1 shows that in *urban* India, private schools' share of total enrolment in 2002 was between about 30 and 40% at different levels of education, though being an official figure, this ignores the numerous enrollments in private unrecognized schools.

Some reasons for the large discrepancy between household survey estimates and official estimates of the size of the private schooling sector in India are discussed in Kingdon (1996a) and Drèze and Kingdon (1998): First, government and aided school teachers have an incentive to over-report their enrollments when there is low demand for such schools (since a school with falling rolls would lose teachers), and this reduces the apparent enrollment share of private schools; second, as previously stated, all official school "censuses" are carried out only in the government-recognized schools, and in most Indian states there is no requirement on private primary schools to be registered, let alone government-recognized. It seems that rural private schools in particular do not easily get government recognition, for which many conditions need to be satisfied. As Kingdon (1996a) says, given the exacting conditions for and scant rewards of recognition, it is not surprising that private primary schools remain unrecognized.

The true size of the private schooling sector is greatly underestimated in official data due to enumerating only the recognized schools. Household survey data give a much more accurate picture since parents have no incentives to over-report enrollment in publicly funded schools or to report enrollment in recognized schools only. Household survey data in table 6.1 suggest the extent to which the enrollment share of private schools in primary education is underestimated in official data—namely by about 67% in rural areas. Muralidharan and Kremer (2006) find that in their national survey of 20 states, 51% of all private primary schools were unrecognized. This accords with evidence from individual states in other studies.⁵

Private schooling is utilized even among the poor in India. Findings from the Micro Impacts at Macroeconomic Policies (MIMAP) survey show that, of all enrolled children aged 5–10-years-old living below the poverty line, 14.8% attended private schools (8% in rural and 36% in urban India). The corresponding figures for ages 11–14 (junior school age) and 15–17 (secondary school age) were 13.8% and 7.0% respectively (Pradhan and Subramaniam 2000). That private schools are used by poor families is also found in five north Indian states (PROBE Team 1999) and by Tooley and Dixon (2003) in Andhra Pradesh.

6.1.3 Growth in Private Schooling

The most telling statistic, however, is not the share of private schooling in the *stock* of total school enrollment, but rather the share of private schooling in the total recent *increase* in school enrollment at different levels. This shows the relative growth of private schooling in India (i.e., relative to the growth of government and aided schooling). Table 6.2 presents the proportion of the total enrollment increase (over time) that is absorbed by private schools. It is constructed from underlying numbers as shown in table 6.A.1 for urban India.⁶ Although information in these official statistics excludes the numerous unrecog-

Table 6.2

Share of Recognized Private Schools in Total Enrollment Increase, by Region, Level of Education, and Time Period

	1978–86	1986–93	1993–2002
<i>Rural</i>			
Primary	2.8	18.5	24.4
Middle	7.2	12.8	23.2
Secondary	5.8	15.8	30.9
<i>Urban</i>			
Primary	56.8	60.5	95.7
Middle	35.7	31.8	71.7
Secondary	17.7	17.7	46.7
<i>Rural & Urban</i>			
Primary	13.5	35.3	38.9
Middle	15.0	21.4	37.8
Secondary	10.7	16.8	38.4

Source: Author's own calculations based on enrollment by school management type in the All India Education Surveys for various years (NCERT 1982, 1992, 1998, 2006). See table 6.A.1 for the underlying urban data.

nized schools, even recognized private school growth numbers are telling.

We learn two things from table 6.2: first, that growth of private schooling has accelerated over time; second, that in urban areas the growth of private schooling has consistently been the greatest at the primary level and progressively smaller at the middle and secondary school levels, which is perverse from the equity point of view since children of the poor are most well-represented at the primary schooling level.

Table 6.2 shows that in *urban* India, 56.8% of all the *increase* in total primary school enrollment in the period 1978–86 was absorbed by private schools; the corresponding figure for 1986–93 was 60.5% and for the period 1993–2002 was 95.7%. Clearly, the pace of “privatization” increased greatly in the 1993–2002 period. In this nine-year period, government and aided primary schools together absorbed only 4.3% of the total net increase in primary school enrollments, that is, their numbers or enrollments grew very slowly. Nearly 96% of the total increase in urban primary enrollment was due to the growth of private schooling! It bears emphasizing that even this dramatic statistic is an underestimate since it takes no account of enrollment growth in the numerous unrecognized private schools that are excluded from the official statistics. The recent growth of private primary schooling in urban India has been nothing short of massive. In *rural* India the rate of expansion of private primary schooling has been much slower but even here the pace of privatization picked up over time: only 2.8% of total rural growth in primary enrollment in the 1978–86 period was absorbed by private schools, but the corresponding figure for the 1986–93 period was 18.5% and for 1993–2002, 24.4%. Again, these figures are all underestimates since they do not include growth in enrollments in the *unrecognized* private primary schools. It is also worth stating that any increase in aided school enrollments—shown in table 6.A.1—if it comes from the establishment of new aided schools rather than merely from expansion in enrollment size in existing aided schools) represents in fact an increase in private schools since aided schools are private schools that start receiving government grant-in-aid.

In some states, acceleration in the growth of private schooling was spectacular even in the 1986–93 period. For instance, in urban Uttar Pradesh (not shown in table 6.2), 94% of all new primary school

enrollment over the period 1986–93 occurred in private schools. The growth of private schooling, particularly at primary and middle levels of education, signals growing inequality of educational opportunity.

The growth of private schooling offers a possible explanation for the fact that despite falling or virtually static per-capita public education expenditure in several Indian states and falling share of elementary education expenditure in state domestic product (Drèze and Sen 2002), these states have improved their educational outcome indicators in the 1990s (Kingdon et al. 2004).

In the next section I examine evidence on the relative effectiveness of private, aided, and government schools in India. This may help to explain—at least in part—the relative popularity and growth of different school types.

6.2 Internal Efficiency of Private and Public Schools

6.2.1 Relative Effectiveness of Private and Public Schools

Until recently, due to the lack of achievement data linked to school and teacher characteristics, studies of the relative effectiveness of public and private schools in India have had to rely on achievement tests carried out by the researchers themselves in small samples of schools (Bashir 1994, 1997; Govinda and Varghese 1993; Kingdon 1994, 1996b; Tooley and Dixon 2003). These studies have been carried out in different parts of India (Tamil Nadu, Madhya Pradesh, Uttar Pradesh, and Andhra Pradesh respectively) and differ in several respects⁷ but they share the common conclusion that private school students generally outperform their public school counterparts in learning achievement even after controlling for schools' student intakes. Recently, Muralidharan and Kremer (2006) corroborate the findings in earlier studies with nationally representative data on rural primary schools.

Bashir (1994, 1997) found that in the southern Indian state of Tamil Nadu, private primary school students performed significantly better in mathematics than government school students, though this was not true in Tamil language achievement (although many of the private schools were English-medium schools, unlike government schools, which were Tamil-medium). She also found aided schools to be more effective than government schools. Govinda and Varghese (1993) found that in the central Indian state of Madhya Pradesh, achievement levels of primary school students in private unaided schools were considerably higher—in both mathematics and language—than those of

pupils in either aided or government schools. A private school effect remained even after controlling for differences in home background and school inputs. Kingdon (1994) found that in the northern Indian state of Uttar Pradesh, private school students outperformed their aided and government school counterparts and that aided and government schools were similar in terms of their effectiveness in imparting learning. Muralidharan and Kremer (2006) bring national data to bear on this issue. They find that in rural India, private school students outperform public school students.

As is well known, even in studies that have information on measurable student characteristics, a major problem in studying the impact of school type on student achievement is that students may choose school type on the basis of unobserved traits such as ability and motivation. If so, then any private school achievement advantage over public schools—after controlling for observed student characteristics—cannot simply be attributed to school type. To have a clean impact evaluation, one needs either an experiment with students randomly assigned to private and public schools, or a convincing way of dealing with endogenous sample selection into private and public schools. There are no randomized experiments available in India to study the relative effectiveness of private and public schools. Kingdon 1996 is the only peer-reviewed journal study for India that attempts to control for potential endogenous selection into different school types on the basis of unobserved characteristics using the Heckman procedure.

As an illustration, table 6.3 summarizes this study's findings from Uttar Pradesh. The method of comparing the relative effectiveness of the different school types is as follows: Choose a pupil at random from the entire student population in the district and give her the average characteristics of the full sample of pupils, say \bar{X} . Then, using the fitted selectivity-corrected achievement (ACH) equations for government (G), private aided (PA) and private unaided (PUA) schools, predict a score for this representative student if she were to attend a G school, another score if it were a PA school, and a third score if it were a PUA school. That is, predict an achievement score in each school type as:

$$ACH_G = \hat{b}_G \bar{X} \quad (6.1)$$

$$ACH_{PA} = \hat{b}_{PA} \bar{X} \quad (6.2)$$

$$ACH_{PUA} = \hat{b}_{PUA} \bar{X} \quad (6.3)$$

Table 6.3

Raw and Standardized Achievement Scores and Relative Advantage Points by Sector and Subject: *G*, *PA*, and *PUA* Schools

	(A) Achievement points			(B) Achievement advantage points		
	<i>G</i> (a)	<i>PA</i> (b)	<i>PUA</i> (c)	<i>PUA-G</i> (c – a)	<i>PUA-PA</i> (c – b)	<i>PA-G</i> (b – a)
<i>Mathematics</i>						
Raw	8.97	8.36	17.09	8.12	8.73	–0.61
Standardized (d)	11.38	10.09	12.80	1.42 [18]	2.71 [31]	–1.29 [–211]
<i>Reading</i>						
Raw	9.77	10.86	16.85	7.08	5.99	1.09
Standardized (e)	13.78	13.73	13.82	0.04 [1]	0.09 [2]	–0.05 [–5]
<i>Achievement</i>						
Raw	18.74	19.22	33.94	15.20	14.72	0.48
Standardized (d + e)	25.16	23.82	26.62	1.46 [10]	2.80 [19]	–1.34 [–279]
OLS standardized achievement points	20.57	22.60	27.56	6.99	4.96	2.03

Note: The maximum marks possible in the math and reading tests were 36 and 29 respectively. Thus, the maximum achievement mark was the total of the two, i.e., 65. The figures in brackets are the standardized achievement advantages as a percentage of the raw achievement advantages. The negative signs imply achievement disadvantages.

where the \hat{b} s are the estimated coefficient vectors in the three different sectors and \bar{X} is a vector of mean values of the explanatory variables, averaged over the entire sample. Now *PUA* schools' achievement advantage over *G* schools, for example, can be calculated as (6.3) – (6.1), *PA* schools' relative advantage over *G* schools as (6.2) – (6.1), and so on. The achievement scores thus calculated and the relative achievement advantages of different school types are presented in table 6.3.

Table 6.3, column B, shows that the unadjusted (raw) mean achievement advantage of private unaided schools over government and aided schools in all subjects falls greatly when personal endowments and sample selectivity of pupils are controlled for. For example, *PUA* schools' raw mathematics-score premium over *G* schools of 8.12 points falls to just 1.42 points. This implies that, of the *PUA* schools' mathematics advantage of 8.12 points vis à vis *G* schools, 82% is explained by

student intake and only 18% can be attributed to school influences. The *PUA* schools' raw mathematics advantage over *PA* schools falls from 8.73 points to 2.71 points, so that 31% of the observed *PUA* math advantage is due to school-related factors and 69% due to student intake. The predicted mathematics score of a child in a *PUA* school (12.80 points) is 27% higher than her predicted math score in a *PA* school, where it would be 10.09 points. In other words, *PUA* schools are 27% more effective than *PA* schools in their math teaching.⁸

G schools' tiny mathematics advantage over *PA* schools increases after controls, suggesting that *G* schools are more effective in imparting numeracy skills than *PA* schools. It is notable that all three school types are roughly equally effective in imparting reading skills. The raw reading-score premiums virtually disappear when student background and selectivity are controlled.

The finding in econometric studies—that private schools are generally more effective than public schools in India—is broadly corroborated by the qualitative findings of the PROBE report, based on a survey of 242 villages in 5 north Indian states (PROBE Team 1999). The authors emphasize low teaching activity in public schools. The report states that the extreme cases of teacher negligence were “less devastating than the quiet inertia of the majority of teachers.... In half of the sample schools, there was no teaching activity at the time of the investigators' visit.... Inactive teachers were found engaged in a variety of pastimes such as sipping tea, reading comics, or eating peanuts, when they were not just sitting idle. Generally speaking, teaching activity has been reduced to a minimum in terms of both time and effort. And this pattern is not confined to a minority of irresponsible teachers—it has become a way of life in the profession” (PROBE Team 1999, 63). While it does not aim to make a case for private schools, the PROBE report contrasts such teacher behavior in government schools with that in private schools. It notes (p. 64) “the high level of teaching activity in private schools, even makeshift ones where the work environment is no better than in government schools.” Again on page 102 the report notes, “In most of the private schools we visited, there was feverish classroom activity.” Also: “This feature of private schools brings out the key role of accountability in the schooling system.... In a government school the chain of accountability is much weaker as teachers have a permanent job with salaries and promotions unrelated to performance. This contrast is perceived with

Table 6.4
Salary Expenditure as a Proportion of Total Education Expenditure

Year	Recurrent as a percentage of total educational expenditure	Salary as a percentage of total recurrent educational expenditure (%)		
		Primary	Junior	Secondary
1960–61	74.7	87.9	85.1	72.3
1965–66	79.4	90.7	89.2	75.3
1969–70	85.0	92.3	90.4	85.6
1974–75	87.1	96.6	94.3	87.1
1981–82	94.8	96.7	93.8	89.9
1987–88	97.3	NA	NA	90.7

Source: Table 13.13 from Kingdon and Muzammil (2003).¹

crystal clarity by the vast majority of parents" (p. 64). Other authors too have noted lax attitudes and low teacher accountability (Weiner 1990). This, in turn, seems to have its roots, at least partly, in teachers' own demands for a centralized education system (Kingdon and Muzammil 2003).

It is thought that in explaining the increased popularity of private education, the breakdown of government schools is often more decisive than parental ability to pay. "In rural Himachal Pradesh, for instance, there is a good deal of purchasing power but the government schools function well, so that there are few private schools. In central Bihar, by contrast, poverty is endemic, yet private schools can be found in many villages due to the dysfunctional state of government schools" (PROBE Team 1999, 102).

6.2.2 Relative Costs of Private and Public Schools

Next I turn to the relative unit costs of private and public schools, that is, the monthly cost of teaching each student. School expenditures in India are dominated by salaries. For example, in government-funded primary schools, salary expenditure as a proportion of total recurrent expenditure was 96.7% in 1981–82 (table 6.4). Comparable expenditure breakdowns are not available for private schools since official statistics do not collect financial data on private schools.

However, table 6.5 shows a comparison of per-pupil expenditures in public and private schools in the Kingdon (1996) microstudy for Uttar Pradesh, showing that in private schools, salaries account for a much

Table 6.5
Annual Per-Pupil Expenditures by School Type (Rupees)

School type	Recurrent expenditure per pupil			Salary as a percentage of total expenditure
	Salary	Non-salary	Total	
Government (G)	1958.40	50.00	2008.40	97.5
Aided (PA)	1780.93	46.87	1827.80	97.4
Private (PUA)	735.94	262.96	998.90	73.7

Source: Kingdon (1994), chapter 6.

Table 6.6
Average Monthly Salary of Teachers by School Type

School type (junior schools)	Average gross salary of sample teachers (rupees per month)
Government (G)	2449.04
Aided (PA)	2429.48
Private (PUA)	1036.73

Source: Kingdon (1994), chapter 6.

lower proportion of total spending (74%) than in government and aided schools (97%). Table 6.5 also shows that recurrent per-pupil expenditure in private schools was only 50% of that in government schools and 55% of that in aided schools. The relatively low per-pupil expenditure in private schools is due largely to the fact that teacher salary rates are far lower in private than government schools. Table 6.6 shows that the average teacher salary in private junior schools was only 42% of that in government schools and 43% of that in aided schools. This is consistent with findings from different parts of India in the early- to mid-1990s (table 6.7). More recent figures in the last two columns of table 6.7 show that the private-public salary gap has increased greatly since the early- to mid-1990s. Private schools pay teachers market-clearing wages that have grown only slowly, whereas government and aided schools pay teachers prescribed minimum wages that have risen inexorably and contain large economic rents.

Table 6.8 presents cost per unit of output by school type. The first row shows that, on average, PUA schools are about twice as cost-advantageous as G and PA schools. It also shows that there is in mathematics (but not in reading) an *achievement* advantage associated with

Table 6.7
Evidence from Indian Studies on Private Unaided and Government School Teachers' Average Monthly Salaries

School level	PUA pay as a percentage of	Kingdon's study 1994	Kansal's study 1990	Govinda/Varghese 1993	Jain's study 1988	Bashir's study 1994	Singh/Sridhar 2002	Muralidharan & Kremer
		Lucknow district of Uttar Pradesh	City of New Delhi	5 districts of Madhya Pradesh	Baroda district of Gujarat	Many districts of Tamil Nadu	2 districts of Uttar Pradesh	20 states of India
<i>Primary/junior level</i>	G pay	42	39	49	47	47	20	20
	PA pay	43	39	66	—	50	—	—
<i>Secondary level</i>	G pay	74	76	—	—	—	—	—
	PA pay	79	76	—	—	—	—	—

Note: The Kingdon study sampled 182 teachers. Kansal 233 teachers, Govinda and Varghese 111 teachers, Bashir 419 teachers, and Singh and Sridhar 467 teachers. We do not know the number of teachers sampled in Jain.

Sources: Jain (1988); Kansal (1990); Govinda and Varghese (1993); Bashir (1994); Kingdon (1994); Singh and Sridhar (2002); Muralidharan and Kremer (2006).

Table 6.8
Unit Costs, Achievement, and Cost per Achievement Point (*G*, *PA*, and *PUA* Schools)

	<i>G</i> (a)	<i>PA</i> (b)	<i>PUA</i> (c)	<i>PUA</i> : <i>G</i> (c/a)	<i>PUA</i> : <i>PA</i> (c/b)	<i>PA</i> : <i>G</i> (b/a)
Cost per student (C)	2008.00	1827.00	998.00	0.50	0.55	0.91
Predicted mathematics score (M)	11.38	10.09	12.80	1.13	1.27	0.89
Cost per mathematics point (C/M)	176.00	181.00	78.00	0.44	0.43	1.03
Predicted reading score (R)	13.78	13.73	13.82	1.00	1.00	1.00
Cost per reading point (C/R)	146.00	133.00	72.00	0.50	0.55	0.91
Predicted total score (T = M + R)	25.16	23.82	26.62	1.06	1.12	0.95
Cost per score point (C/T)	80.00	77.00	38.00	0.47	0.49	0.96

Source: Kingdon (1996).

attending a *PUA* school. Combining *PUA* schools' 100% unit cost advantage over *G* schools with their 13% mathematics advantage leads to the conclusion that *PUA* schools are much more cost-effective than *G* schools in their mathematics teaching. Another way of saying this is that they produce the same level of numeracy skills as *G* schools at a mere 44% of the cost of *G* schools. They produce the same level of reading achievement as in *G* schools at half the cost. The comparison of *PUA* schools with *PA* schools is of similar magnitudes.

To summarize, the results show that *PUA* schools' ability to pay market-clearing wages and, thus, their far more thrifty use of teachers implies a large unit cost advantage over government-funded (*G* and *PA*) schools. This reinforces their achievement advantage over the other school types so that they are unambiguously and substantially more cost-effective or internally efficient than both *G* and *PA* schools, which are roughly equally efficient.

However, teachers' objections to private school salary levels is that market wages are not commensurate with the cost of (decent) living. Whether one favors low market wages to achieve cost efficiency in education, or high minimum wages that protect teachers at the expense of cost-efficiency, is not an ideologically neutral question. However, it seems that in India, teacher salaries relative to per-capita income are higher than in many other countries⁹ and that government-paid teachers' salaries have increased impressively in real terms: Drèze and

Saran (1993, 32a) report that in 1993 a teacher's monthly salary in Palanpur (Uttar Pradesh) could buy very nearly twice the amount of wheat that his monthly salary could buy in 1983. Kingdon and Muzammil (2003, chapter 13) calculate that in the 22-year period from 1974 to 1996, teacher salaries in Uttar Pradesh grew by about 5% per annum in *real*—that is, inflation-adjusted—terms. This is significantly higher than growth of per-capita real GDP in India over this period which, according to Penn World Tables, was on average 3% per annum.

6.3 Public-Private Partnership in Education in India

6.3.1 Historical Experience of PPPs

If private schools attract households, it suggests that parents perceive them to be more advantageous relative to public schools. As Nechyba (2005) states, "the nature of these advantages is likely to shape our view of how the private sector can be most effectively mobilized to advance academic achievement and other social goals." The main avowed advantage of public-private partnerships (PPPs)—publicly funded but privately produced/delivered education—is that they harness the energy, expertise, financial acumen, management skills, and (sometimes) resources of the private sector to create better value for money for taxpayers (LaRocque 2004). It is thought that PPPs provide a more flexible way of producing education, since the private entity running the school has more discretion about the running of the school than is possible in public schools. Decentralized decision making at the level of the school is thought to be more responsive to parents and to foster local accountability.

In recent years there has been increased advocacy in favor of PPPs in education. Any collaboration between public bodies such as local or state government and private operators is referred to as PPP and there are a wide variety of different types of PPPs in education in different countries.

A substantial PPP system does operate in India, at least at the secondary and higher levels of education. This is the system of government grant-in-aid to privately managed schools. According to the Ministry of Human Resource Development (MHRD) cited in Bashir (2005), in 1995–96 the percentage share of aided schools in total schools was 34.0% and 44.3% respectively at the secondary and higher secondary levels, though at the primary and middle levels, it was only

3.4% and 10.1% respectively. According to University Grants Council data in 2000–01, 42% of all higher education institutions in India were aided, which closely match the MHRD figures.

There is great interstate variation within India, in the extent to which aided schools are utilized at different levels of education. For instance, in 2000–01, in Kerala 59.7% but in Uttar Pradesh only 1.6% of all primary schools were aided, although at the higher secondary level the picture was very different: 42.6% of all Kerala but 74.7% of all Uttar Pradesh higher secondary schools were aided (MHRD, quoted in Bashir 2005). Grants to aided schools account for a substantial proportion of the education budget, though again there is large interstate variation, for example, in elementary education from 0% in Gujarat to 84.4% in West Bengal; in secondary education from 1.1% in Himachal to 94.2% in West Bengal; and in higher education from 0% in Bihar to 87.2% in Maharashtra (Bashir 2005).

When India inherited this PPP system from the British in 1948, aided schools avoided many government regulations and interference. For instance, they had far more autonomy than public schools in determining staff disciplinary policies. Any recognized private school could apply for government grant-in-aid and, once granted aided status, it received a subsidy from the state government. Its teachers were paid out of school revenues and were thus accountable to fee-paying parents and to the school manager. They could be disciplined and hired/fired at the level of the school.

However, teachers of aided schools became increasingly unionized and lobbied hard in the mid- to late 1960s to be paid directly by the state government rather than via their private management which, they claimed, engaged in unfair practices such as not paying fair wages. Their intense lobbying and strikes helped the passage of the momentous Salary Distribution Act (1971) in Uttar Pradesh and similar acts in other states, such as the Direct Payment Agreement (1972) in Kerala. These acts stipulated that aided school teachers' salaries would be paid directly to them rather than first going to school management. The acts represented a massive centralization of school management and they reduced aided school teachers' accountability to their local managers (Kingdon and Muzammil 2003). Thus, over time, aided schools have become increasingly similar to public schools because their modus operandi has become more and more like that of public schools. In addition to their teachers' salaries now being paid directly by the state government, their teacher appointments are made by an

Education Service Commission of the state government, as for public school teacher appointments. Given the similarities in the institutional arrangements and teacher incentives in aided and government schools in Uttar Pradesh, perhaps it is not surprising that, as seen earlier, there is little difference between government and aided schools in terms of either their effectiveness in imparting learning or in terms of their per-pupil salary expenditures and per-pupil education expenditures.

Loss of local-level accountability (via centralizing legislation) is not the only factor behind what is often seen as lax attitudes of teachers toward their schools and students. One manifestation of poor attitudes is their significantly higher within-village teacher absenteeism rates ~~publicly~~ than in private schools (Kremer et al. 2005), despite getting salaries on average five times the private teachers' salary rates in the early 2000s (see table 6.7). The National Commission on Teachers (NCT), the only government commission on teachers in post-independence India, in a report written with much sympathy for the teaching profession, blames teacher unions, suggesting that union-backed teachers do not fear adverse repercussions if they are slack in their work. The report of the NCT notes that "some of the Principals deposing before it [i.e. before the Commission] lamented that they had no powers over teachers and were not in a position to enforce order and discipline. Nor did the district inspectors of schools and other officials exercise any authority over them as the erring teachers were often supported by powerful teachers' associations. We were told that there was no assessment of a teacher's academic work and other duties and that teachers were virtually unaccountable to anybody" (National Commission on Teachers 1986, 68).

This type of behavior is possibly further strengthened by the fact that teachers (or rather, mostly their union leaders) are also legislators in the state parliament, both as Members of the Legislative Assembly (MLAs) and as Members of the Legislative Council (MLCs).¹⁰ In other words, teachers have their sympathizers in the corridors of power, who tend to shelter them in case any disciplinary issues arise. Aided school teachers are in a politically particularly advantageous position vis à vis government school teachers: although they are publicly paid workers, they are not debarred from contesting political elections because they are not deemed to hold an "office of profit" under the government (unlike government school teachers). As a result, aided school teachers freely contest elections. The National Commission on Teachers (1986, 68) stated that "the most important factor responsible for viti-

ating the atmosphere in schools, we were told, has been the role of teacher politicians and teachers' organisations."

A further possible reason why aided schools—the Indian form of educational PPP—perform no better than government schools in Uttar Pradesh is that the government grant to aided schools is devoid of any performance incentives. Despite the existence of certain rules and conditions, the system of grants-in-aid in Uttar Pradesh is not linked to the qualitative performance of schools. Even when the school's grant-in-aid was made conditional on satisfactory examination performance of the school's students, the pass rate was fixed at a paltry 45%—that is, it was required that only 45% (or more) of the students pass the high school exam (and a student needs to get a mere 33% average grade across all subjects to pass high school)! Similarly, low standards are required for the minimum number of days the school must be open in order to remain eligible for grants. However, there is little monitoring or verification of compliance with even these undemanding conditions. On the whole, the system still leaves much to be desired and it is not surprising because in practice, political maneuvers often overrule the provisions laid down by the state government to sanction and regulate recurring and nonrecurring grants. The following observation of Rudolph and Rudolph (1972, 105) with regard to the flouting of conditions of grants-in-aid still holds: "these grants in aid are technically conditioned upon the maintenance of certain academic and administrative standards, but in reality an educational entrepreneur who enjoys political favour has little difficulty in establishing his institution's qualification."

While the number of aided schools expanded tremendously in India in the post-independence period, the system of grants-in-aid has remained essentially the same as that introduced by the British 150 years ago. By contrast, the British system of grants itself underwent revolutionary changes and became more objective, particularly from the 1920s onward. What incentives can be built into public grants to private schools is an area that deserves detailed study. A per-student (as opposed to block) grant system may be desirable that relates a PPP grant to various school performance indicators such as percentage of total expenses spent on nonsalary costs (to encourage quality improvements), percentage of total funds raised from nonfee sources such as parental donations (to encourage equitable resource-generation), percentage of parents who are satisfied with the school (to encourage accountability), and average number of students per class (to encourage

cost-consciousness), and so on. A more rational grant structure could be a policy correction that has potentially the biggest payoffs in terms of improved cost-efficiency in Indian education.

In summary, while PPPs are in theory supposed to lead to better quality schooling than publicly produced education, educational PPPs in India—the private aided schools—mostly function no better than public schools, at least at the junior and secondary levels in Uttar Pradesh where the author has done most of her research. An important reason for this appears to be that, over time, in response to their teachers' demands, aided schools have become like public schools, with few performance incentives and a lack of local accountability. Governments have lacked the courage to increase local accountability of teachers, who constitute a well-organized group with powerful political representation and strong unions: Kingdon and Muzammil (2003, ch. 10 and 11) show that teacher unions in Uttar Pradesh have opposed government proposals to introduce local-level accountability.

This experience of PPPs in education in India has important lessons for future education policy in India as well as for other countries. One thing it suggests is that when PPPs in education operate side by side with government schools, political pressure can mount over time for comparable treatment of teachers across the two school types, and any advantages of PPPs over government schools—if real—may not be enduring. However, the experience of PPPs in education in other countries, for example, in the Netherlands and elsewhere, shows that the build-up of such political pressure is not inevitable and that PPPs can work well in education. Why PPPs function well in some countries and apparently not in others is a research question that deserves attention. The devil seems to be in the detail of the PPP scheme—the design features that distinguish one PPP scheme from another.

6.3.2 Proposed New Form of PPP in Education

One of the main provisions of the current draft Right to Education Bill is that the national government will pay private schools for some publicly paid places. This effectively proposes to introduce a new form of PPP involving a per-student public subsidy to private schools, quite different to the way Indian states have financed private (so-called aided) schools thus far, which is by paying block grants in the form of salaries of all teachers of the aided school. The draft bill proposes to oblige all private schools to give 25% of school places to students from

“the weaker sections of society” and the government promises to reimburse the private schools for these places “at a rate equal to the per child expenditure in state schools/fully aided schools and state funded pre-schools, or the actual amount charged per student by such school, whichever is less, in such manner as may be prescribed” (clause 14.2, chapter 4, Right to Education Bill, August 2005).

This is the first time a post-independence Indian government has sought to utilize the private sector to provide publicly funded education (the aided school scheme was inherited from the British). Interestingly, the scheme is championed not by the right wing, the usual advocates of private education, but rather by those concerned with equity in education. Far from being the result of lobbying by the private school sector for government funds, the scheme is rather generally opposed by private schools on the grounds that mixing disadvantaged children with those from well-off homes will be psychologically damaging for disadvantaged children.

The bill and its provisions raise a number of important issues in elementary education that have not been widely aired or seriously debated. First, it has not been clarified how “weaker sections” will be defined and chosen and how all disadvantaged children will get an equal chance of access to private schools. Second, the choice of *this particular* way of providing “education of equitable quality” has not been justified in comparison to other potential designs. Different designs, depending on the alternative incentive structures inherent in them, can address different educational efficiency and equity goals. For instance, the bill proposes to give money directly to *private schools* to accept disadvantaged students rather than giving the same money as vouchers (entitlements of a particular monetary value) to *disadvantaged children*. The efficiency implications of these two ways of setting up the PPP could be very different due to the differing potential for school competition under these two ways of providing the same amount of funding. Whether money is given directly to the school (supply-side funding) or via the students (demand-side funding) also has potentially different *equity* implications because the matching of students to particular schools is likely to be different under these two models. Third, the draft bill could have major implications for the overall number of private schools and their fee levels. It is unclear, for instance, whether private schools’ response to the bill will be to create *new places* to accommodate publicly paid students or to *replace* 25% of existing students, or

a bit of both. Moreover, since per-pupil expenditure in public schools is much larger than fee levels in most private schools (which now pay teachers on average one-fifth the salary level of public schools, as seen in table 6.8), the bill's stipulations could well generally increase private school fee levels.

This raises the question of why recommendations for decentralizing reform in India, including the current draft Right to Education Bill, have never included serious consideration of the possibility of providing school choice to students via vouchers, as a way of improving accountability of schools and teachers towards parents, unlike in other countries such as Chile, Colombia, New Zealand, the United States, and the United Kingdom, where there has been vigorous debate about and experimentation with vouchers as well as charter and concession schools. There are several potential explanations for this omission, as well as several concerns about school voucher schemes.

First, in India (and other poor countries), the most obvious failure of public schools is their very visible lack of resources, infrastructure, facilities, books, and teaching materials, and the obvious remedy is seen to be for government to fix these physical deficiencies. In many other countries, the focus of school reform has moved to improving incentives rather than inputs. Hanushek (2003) shows that while inputs matter somewhat more in developing than in developed countries, the provision of more resources does not raise student achievement levels in the majority of studies.

A second plausible reason for India's lack of consideration of a radical voucher-type reform is the fear of upsetting powerful vested interests such as teacher unions, which are likely to vehemently oppose such proposals to increase local accountability. Unions have fought hard over decades for legislation that shelters teachers from having to be locally accountable, and successive Indian governments have judged it politically infeasible to upset this powerful group that staffs polling booths at election time.

Third, while the issues are complex and much debated, some authors have raised concerns about adverse equity effects of vouchers (Hsieh and Urquiola 2003; Ladd 2002; LaRocque 2004). They find that voucher schemes can encourage the relatively better-off students to abandon public schools, supplement the voucher with private funds, and take private school places, thus leaving public schools with the less-well-off and often less-motivated students. However, Nechyba

(2005) argues that the equity effects of school choice and PPP schemes can be addressed by the way in which vouchers are designed. "In particular, one can design vouchers to be inversely related to household income and to vary depending on student type thus offering increased school resources to those who find it disproportionately difficult to afford private school tuition and those whose children are disproportionately costly."

Fourth, there would be concerns about implementation of school choice schemes in the Indian context, such as: (1) the need to provide transport to nearby villages in order to offer real school choice/competition in rural (low-population density) areas, which has its attendant administrative and cost implications; and (2) the issue of whether uneducated/illiterate parents are able to make informed school choices. It may be argued that a voucher scheme will also be problematic because of the lack of a strong regulatory system to ensure schools' compliance with standards and the scope for corruption in the presence of weak monitoring and high costs of verification. However, it is well known that the current system also suffers from weak regulation and widespread corruption (e.g., see Dixon 2005) so the question is whether these difficulties would *increase* in the presence of voucher funding of education, and the answer is unclear. The point here is not to make a case for or against vouchers or any particular way of giving funds to private schools but rather to say that all the above concerns and issues are worthy of detailed consideration before the legislation is finalized.

6.4 Summary and Conclusions

Analysis of education issues in India is hampered by the absence of data on student achievement and partial coverage of schools in official data. Nevertheless, it is clear that private schooling has mushroomed in India, particularly at the primary level, where the government does not exert control as much as it does in the higher levels. Private schooling is also popularly utilized by families below the poverty line. According to qualitative accounts, the growth of private schools is greatest in areas where public schools do not function well.

Evidence suggests that private schools are more than twice as cost-effective as government schools in the large northern state of Uttar Pradesh. In other states where this issue has been explored (Tamil Nadu,

Madhya Pradesh, and Andhra Pradesh), private schools have also been found to be generally more effective than government schools in imparting learning, after controlling for student intake.

While aided schools—a form of public-private partnership in education—are no more cost-effective than government schools in Uttar Pradesh, this appears to be because over time they have become more and more like government schools owing to aided school teachers' successful lobbying for comparability of treatment vis à vis government school teachers.

The draft Right to Education Bill proposes to introduce a new form of public-private partnership in the form of a per-student subsidy to private schools, but the implications of this measure have not been vigorously debated yet. Nor have issues of school choice and competition via vouchers to families been considered in terms of their quality and equity effects, as compared with the current PPP proposal in the bill that intends to give funds directly to schools. The drawbacks of voucher schemes including problems of implementation were discussed, noting that some of the same concerns would also apply to the currently proposed form of PPPs in the draft bill and noting that equity concerns may be addressed by making the voucher amount inverse to family income.

It is critical to have a full national debate about the merits and drawbacks of the draft bill's proposed way of giving funds to private schools, in comparison with alternative PPP designs. In such a discussion, it would be useful to learn from the mistakes and successes of other countries that have tried alternative schemes for allocating public funds to private schools. Moreover, there may be a case to make for introducing the proposed measures on a pilot basis in one part of the country—to observe their effects for a specific period, and then to hone and improve what will potentially be a far-reaching and long-standing measure.

6.5 Appendix

See facing page.

Table 6.A.1
Growth in Enrollments by Level and School Type in India, 1978–2002 (Recognized Schools Only) India (Urban Only)

Level	1978–86				1986–93		1993–2002	
	Number of students enrolled		2002 (d)	% share of the total increase (f) = e/x1	Absolute increase in enrollment (g) = c – b	% share of the total increase (h) = g/x2	Absolute increase in enrollment (i) = d – c	% share of the total increase (j) = i/x3
	1978 (a)	1986 (b)	1993 (c)					
<i>Primary</i>								
Government	10,270,760	11,189,956	12,836,933	26.7	1,646,977	37.1	–69,983	–1.3
Aided	4,735,795	5,304,932	5,414,067	16.5	109,135	2.5	296,400	5.6
Private	1,663,969	3,617,791	6,305,253	56.8	2,687,462	60.5	5,034,171	95.7
<i>Total increase in all types</i>					4,443,574 (x2)		5,261,088 (x3)	
<i>Junior</i>								
Government	3,173,594	4,272,930	5,229,084	43.2	956,154	31.3	352,582	10.3
Aided	3,336,413	3,874,078	4,999,795	21.1	1,125,717	36.9	612,854	18.0
Private	488,266	1,395,610	2,367,067	35.7	971,457	31.8	2,447,513	71.7
<i>Total increase in all types</i>					3,053,328 (x2)		3,412,949 (x3)	
<i>Secondary</i>								
Government	1,808,870	2,679,760	3,996,181	34.3	1,316,421	44.6	1,286,033	21.6
Aided	2,687,164	3,906,889	5,016,267	48.0	1,109,378	37.6	1,888,803	31.7
Private	195,969	645,442	1,168,160	17.7	522,718	17.7	2,776,792	46.7
<i>Total increase in all types</i>					2,948,517 (x2)		5,951,628 (x3)	

Source: NCERT (1982) Fourth All India Education Survey of 1978–79; NCERT (1992) Fifth All India Education Survey of 1986–87, p. 1116–1138; NCERT (1998) Sixth All India Education Survey of 1993–94; figures from the Seventh All India Education Survey of 2002–03 obtained from <http://gov.ua.nic.in/NScheduleData/main3.aspx>

Notes

1. In the state of Uttar Pradesh, to gain government recognition a private school must be a registered society, have an owned rather than a rented building, employ only trained teachers, pay salaries according to government prescribed norms, have classrooms of a specified minimum size, and charge only government-set fee rates. It must also instruct in the official language of the state and not be situated within five kilometers of a government school (Kingdon 1994, chapter 2).

2. For instance, the condition to charge only government school-tuition-fee rates is now incompatible with the condition to pay the government-prescribed salary rates to teachers, since government school-fee rates have been cut consistently since the 1960s and were abolished altogether in the early 1990s in all elementary schools, and since government-prescribed minimum salaries to teachers have risen inexorably over time: Kingdon and Muzammil (2003, chapter 13) estimate that average teacher salary rates rose by 5% per annum in *real* terms in the 22-year period between 1974 and 1996.

3. The two sources are not exactly comparable since some school-going 6–10-year-olds may attend preprimary or upper primary grades, i.e., be over- or underaged for their grade.

4. Although ASER merged aided and unaided private schools into a single category, private, at the primary level, there are few aided schools in most states so that the private enrollment rates in ASER can be taken to mean mostly private unaided school enrollments. ASER2006 found that 20.4% of boys and 16.8% of girls enrolled in grades one to eight attended private schools. This 21% gender gap suggests one way in which girls are discriminated against, namely via being substantially less likely to be sent to private schools than boys (see Kingdon 2005).

5. Aggarwal (2000) found that in his four surveyed districts of Haryana in 1999, there were 2,120 private primary schools of which 41% were unrecognized. The PROBE survey of 1996 in five north Indian states did a complete census of all schools in 188 sample villages. It found 41 private schools of which 63% were unrecognized. Mehta (2005) found that in seven districts of Punjab, there were 3,058 private elementary (primary and junior) schools, of which 86% were unrecognized.

6. Take the example of the junior (or upper primary) education level in urban India. Between 1993 and 2002, according to table 6.A.1, junior enrollment increased by 3,412,949. Out of this, the enrollment increase in private schools was 2,447,513, which is 71.7% of the total increase in junior enrollments.

7. While Kingdon's study is based on students in the final year of upper primary education (grade eight), the other studies are based on students in the final year of lower primary schooling (grades four or five). The methods used differed too. Bashir used hierarchical linear modeling, Govinda and Varghese used OLS regression, and Kingdon used sample selectivity correction models. The extent of controls for home background differed across the studies too, as well as whether school and teacher characteristics were included in the achievement equations. Finally the costs of private and public schooling were calculated differently in the different studies. In all three studies, the stratified random samples of private schools consisted of schools of all types—nonprofit, proprietary, faith-based, high-fee and low-fee schools, etc.

8. The correction for sample selectivity reduces the private school achievement advantage over government schools by a very large amount (compared to the OLS results in

the last row of table 6.4). This large reduction is somewhat surprising since one would not expect the unobserved factors (that remain after controlling for the child's score in the Raven's test of ability and for a rich set of home background characteristics) to make such a large difference to a child's predicted achievement score.

9. For example, the ratio of (public primary school) teacher salary to per capita GDP in the late 1990s was 1.15 in OECD countries, 4.4 in Africa, 2.3 in Latin America, and 2.9 in Asia (UNESCO statistics, available at portal.unesco.org/education/en/file_download.php/) but 8.5 in Uttar Pradesh, India (author's own calculation).

10. The constitution of India guarantees representation to teachers in the Upper Houses of state legislatures. Thus, uniquely among all worker groups, the teaching profession has been singled out for this political privilege (see Kingdon and Muzammil 2003), though Upper Houses now exist in only four large states in India.

References

- Aggarwal, Yash. 2000. Public and private partnership in primary education in India: A study of unrecognised schools in Haryana. New Delhi: National Institute of Educational Planning and Administration.
- Banerjee, A., S. Cole, E. Duflo, and L. Linden. 2005. Remedying education: Evidence from two randomized experiments in India. NBER Working Paper No. 11904, December.
- Bashir, Sajitha. 1994. Public versus private in primary education: Comparisons of school effectiveness and costs in Tamil Nadu. Unpublished Ph.D. thesis, London School of Economics.
- Bashir, Sajitha. 1997. The cost-effectiveness of public and private schools: Knowledge gaps, new research methodologies and an application in India. In *Marketizing Education and Health in Developing Countries: Miracle or Mirage?*, ed. C. Colclough, chapter 5. Oxford: Clarendon.
- Bashir, Sajitha. 2005. Grant-in-aid mechanism in India: Policy note. World Bank.
- Dixon, P. 2005. Private aided primary and secondary schools in Karnataka, India: A cautionary tale of a public-private partnership. Mimeo, School of Education, Newcastle University.
- Drèze, J., and M. Saran. 1993. Primary education and economic development in China and India: Overview and two case studies. Discussion Paper No. 47, Development Economics Research Programme, London School of Economics.
- Drèze, Jean, and Geeta Gandhi Kingdon. 1998. Biases in education statistics. *The Hindu*, March 6.
- Drèze, Jean and Geeta Gandhi Kingdon. 2001. Schooling participation in rural India. *Review of Development Economics* 5, no. 1 (February): 1–24.
- Drèze, Jean, and Amartya Sen. 2002. *India: Development and Participation*. Oxford and Delhi: Clarendon Press.
- Duflo, Esther, and Rema Hanna. 2005. Improving teacher attendance in rural India. Mimeo, Poverty Action Lab, MIT, Cambridge, MA.

Govinda, R., and N. V. Varghese. 1993. *Quality of Primary Schooling in India: A Case Study of Madhya Pradesh*. Paris: International Institute for Educational Planning, and New Delhi: National Institute of Educational Planning and Administration (NIEPA).

Hanushek, Eric. 2003. The failure of input-based schooling policies. *Economic Journal* 113, no. 485: F1–F120.

Hsieh, C. T., and M. Urquiola. 2003. When schools compete: How do they compete? An assessment of Chile's nationwide school voucher program. Working Paper No. 10008. National Bureau of Economic Research.

Jain, S. C. 1988. Non-official initiatives for catering to the educational needs of the urban poor: A case study of Baroda slums. Unpublished typescript. Baroda: Baroda Citizens Council.

Jalan, Jyotsna, and Elena Glinskaya. 2002. Small bang for big bucks? An evaluation of a primary school intervention in India. Mimeo, World Bank, August.

Kansal, S. M. 1990. Disparity in income and levels of living among teachers in Delhi. *Economic and Political Weekly* 25, no. 46 (Nov. 17): 2547–2554.

Kingdon, Geeta G. 1994. An economic evaluation of school management-types in India: A case study of Uttar Pradesh. Unpublished D.Phil. thesis, Economics Department, Oxford University.

Kingdon, Geeta G. 1996a. Private schooling in India: Size, nature and equity effects. *Economic and Political Weekly* 31, no. 51: 3306–3314.

Kingdon, Geeta G. 1996b. The quality and efficiency of public and private schools: A case study of urban India. *Oxford Bulletin of Economics and Statistics* 58, no. 1 (Feb.): 55–80.

Kingdon, Geeta G. 2005. Where has all the bias gone? Detecting gender bias in the intra-household allocation of educational expenditure in rural India. *Economic Development and Cultural Change* 53, no. 2: 409–452.

Kingdon, Geeta Gandhi. 2006. Teacher characteristics and student performance in India: A pupil fixed effects approach. GPRG-WPS-059, Global Poverty Research Group, Department of Economics, University of Oxford.

Kingdon, G., R. Cassen, K. McNay, and L. Visaria. 2004. Education and literacy. In *Twenty-First Century India: Population, Economy, Human Development, and the Environment*, ed. T. Dyson, R. Cassen, and L. Visaria. New Delhi: Oxford University Press.

Kingdon, Geeta G., and Mohammad Muzammil. 2003. *The Political Economy of Education in India: Teacher Politics in Uttar Pradesh*. Delhi: Oxford University Press.

Kingdon, Geeta Gandhi, and Francis Teal. 2007. Does performance related pay for teachers improve student achievement? Some evidence from India. *Economics of Education Review* 24, no. 4 (August): 473–486.

Kremer, Michael, Nazmul Chaudhury, Hasley Rogers, Karthik Muralidharan, and Jeffrey Hammer. 2005. Teacher absence in India: A snapshot. *Journal of the European Economic Association* 3: 658–667.

Ladd, Helen F. 2002. School vouchers: A critical view. *Journal of Economic Perspectives* 16, no. 4: 3–24.

- LaRocque, Norman. 2004. School choice: Lessons from New Zealand. Paper presented to the conference on "What Americans Can Learn from School Choice in Other Countries." Cato Institute, Washington D.C., May.
- Mehta, Arun. 2005. Elementary education in unrecognized schools in India: A study of Punjab based on DISE 2005 data. New Delhi: NIEPA.
- Muralidharan, Karthik, and M. Kremer. 2006. Private and public schools in rural India. Mimeo, March, Harvard University, Cambridge, MA.
- Muralidharan, Karthik, and V. Sundararaman. 2006. Teacher incentives in developing countries: Experimental evidence from India. Mimeo, Harvard University.
- National Commission on Teachers. 1986. The teacher and society: Volume I. *Report of the National Commission on Teachers, 1983–85*. New Delhi: Government of India Press.
- National Council for Educational Research and Training (NCERT). Various years. *All India education survey*. New Delhi: NCERT.
- National Sample Survey Organisation. 1998. Attending an educational institution in India: Its level, nature, and cost. Report no. 439. New Delhi: NSSO.
- Nechyba, Thomas. 2005. Mobilizing the private sector: A theoretical overview. Working Paper PEPG 05-06, Program on Education Policy and Governance, Kennedy School of Government, Harvard University.
- Pandey, Priyanka, M. Goyal, and D. Levine. 2006. Does information matter for service delivery and governance? Mimeo, Johns Hopkins School of Medicine, Baltimore, MD.
- Pradhan, B., and Subramanian, A. 2000. Education, openness and the poor: Analysis of an all-India survey of households. National Council of Applied Economic Research (NCAER) Discussion Paper, no. DP020015. New Delhi: NCAER.
- Pratham. 2007. Annual status of education report 2006. New Delhi: PRATHAM Resource Centre.
- PROBE Team. 1999. *Public report on basic education in India*. New Delhi: Oxford University Press.
- Right to Education Bill. 2005. Right to Education Bill, draft, August 25, 2005, at <<http://www.education.nic.in/htmlweb/RighttoEducationBill2005.pdf>>.
- Rudolph, L. I., and S. H. Rudolph. 1972. *Education and politics in India*. Cambridge, MA: Harvard University Press.
- Schmid, Juan Pedro. 2006. Was the District Primary Education Programme in India effective? Draft Ph.D. thesis chapter, Swiss Federal Institute of Technology, Zurich, August.
- Singh, Shailendra, and Kala Seetharam Sridhar. 2002. Government and private schools: Trends in enrollment and retention. *Economic and Political Weekly* 37, no. 41 (October 12): 4229–4238.
- Tooley, James, and Pauline Dixon. 2003. Private schools for the poor: A case study from India. Reading, U.K.: CfBT.
- Weiner, Myron. 1990. *The Child and the State in India: Child Labor and Education Policy in Comparative Perspective*. Princeton: Princeton University Press.

